

Municipal Growth

Overview

The purpose of this chapter is to examine the relationship between land use and population trends to predict the residential and non-residential demand as well as their impacts on public services and community facilities. In combination with other chapters of this Plan, recommendations to guide growth, infrastructure, and services both within and outside of the existing City boundary are examined. These policies also affect State assistance as the analysis of capacity available for development, including infill and redevelopment, play a significant role in the creation of the City of Frederick Priority Funding Area (PFA).

[bumpout – define PFA]

1997 Planning Legislation capitalizes on the state's influence on economic growth and development. This law directs state spending to Priority Funding Areas. PFA's are existing communities and places designated by local governments indicating where they want state investment to support future growth.

As stated in previous chapters, the city is expecting a continual increase in population, which will have a significant impact on development patterns and land consumption as well as the City's service boundary. An overarching goal of the Comprehensive Plan is to prioritize redevelopment of vacant and underutilized lands and buildings, where existing infrastructure and public services have the capacity to serve the additional growth. The 2010 Comprehensive Plan recommended a modest expansion of the City limits in comparison to the 2004 Comprehensive Plan and the subsequent annexation initiative. Unlike the 2010 Plan, this Plan does not limit the extent of future growth outside of the existing corporate boundary. Instead a flexible growth approach acknowledges that a healthy balance between market demand and infrastructure constraints will determine the future growth pattern.

In recent history, the City's growth boundary has been limited by water capacity, mainly determined by the City and County Potomac River Water Service Agreement (PRWSA), a utility service agreement for County supplied water capacity. In addition, the school capacity has been a factor for new development, including infill and redevelopment opportunities. When considering the population projection coupled with the limitations of utility capacity and school capacity, it is important to remain flexible to emerging

technologies and governmental policies that may affect the growth patterns that the market demands.

Population Growth

The City of Frederick showed the largest percentage growth in the following years: 1860 (35%), 1930 (30%), 1990 (43%) and 2000 (31%). The City of Frederick only had one period of decline and that happened in 1890. The reduction in population amounted to five percent (5%) of the total population.

The 1860's increase can be attributed to Maryland's predominance of being the breadbasket of the Mid-Atlantic region. The rail had been expanded to the region as well as the C&O Canal to help reduce the cost of transporting goods from the region to Baltimore.

The 1930's increase can be ascribed to focus on the air cargo transport and the military where Detrick Field, now Fort Detrick, was used as a summer training camp by the 104th Air Squadron 29th Division. Again, like the railroad had been in the previous era, air cargo transport had been expanded to the region and the labor associated with this economic growth. Detrick Field became Camp Detrick and continually grew through the 60's. The exception was the 1970's when both the City and the County entered into a prolonged and difficult economic downturn.

Almost half of the City's population growth occurred after 1980. This unprecedented growth is related to the growth at Fort Detrick and the price of real estate. In 1990 and 2000 due to the rising cost of land around Washington DC and Baltimore, the City of Frederick was viewed as an acceptable commuting distance to these two large employment areas.

In the last 10 years, the City of Frederick and Frederick County has seen a rise of employers relocating to the area. Table 4-1 shows the businesses that were either relocating or expanding in the City. Frederick's City population has been about 24.5% of Frederick County's population in 1980 and has been increased to 28% in 2010. According to Metropolitan Washington Council of Governments (MWCOG), this ratio is not expected to change significantly until 2040. Table 4-2 shows this relationship.

AstraZeneca (formerly MedImmune) – Biopharmaceutical Manufacturing -
EXPANSION

Stulz ATS – HVAC Manufacturing - EXPANSION

Frederick National Laboratory for Cancer Research (Biomedical Cancer and
AIDS Research) - NEW

Equipment Development Corporation (EDCO) – Floor Finishing Manufacturing and custom Metal work - EXPANSION
Frederick Health – Frederick Memorial Hospital - EXPANSION
Frederick Health – James M Stockman Cancer Institute - NEW
Charles River Labs – Vivarium - EXPANSION
Fort Detrick National Biodefense Campus – (Biomedical Research and Development) – EXPANSION/NEW
Ogden Newspapers Printing (formerly Randall Family LLC) - NEW
Wilcoxon Sensing Technologies – Manufacturing – NEW
Frederick Innovative Technology Center Inc (FITCI) @ ROOT – Technology Business Incubator – NEW
Dairy Maid Dairy – EXPANSION

(Insert Table MGE-2)

Future Population Growth

The City of Frederick is under intense growth pressure due to its location of being 45 miles from both Baltimore, Maryland and Washington, DC, as well as being at the top end of the 1-270 jobs corridor. The City's population growth trend is expected to continue as MWCOG projects more than 32% population increase from 2015 to 2045 for the City.

[Insert COG table]

[Insert Infographics]

Household Size Table

Housing Projection Table

(Insert Table MGE-3)

According to COG, in 2045, the City's population will be 93,100 in 36,700 households. This means the household size will be 2.54 people per household. However, based on the 2018 American Community Survey (ACS), Frederick's household size is currently 2.46 and considering the historical data, it is expected to decrease just like in the past decades. Considering COG population projection of 93,100, coupled with household size decreases to 2.35, there will be a need of just under 40,000 housing units in the City.

Future Growth Priorities

A policy recommendation of this plan is to encourage mixed-use redevelopment and infill development with the addition of several mixed-use

land classifications and higher densities within the Tier I and Tier II growth boundary. The purpose of these recommendations is to meet the demand for housing as the population increases with limited growth potential outside of the existing growth boundary and PRWSA. At this time there are approximately 790 acres of land within the PRWSA and Tier II growth area that could be annexed and developed.

The land beyond the Tier II growth area that could be annexed is limited due to geographical, topographic and political influences. There is potential for growth to the north and west of the City. However, due to the extreme infrastructure costs, the increased elevation limits the potential to provide water services to those areas. There are areas to the east that may be developable, however the Monocacy River provides a natural geographical boundary, which may be cost prohibitive to provide adequate road infrastructure to serve the neighborhoods. As indicated in the Land Use chapter, the areas south of Interstate 70 are delineated as future Frederick County growth area and served by County sewer. While the City would encourage development in this area to be developed within the City boundary, the willingness to annex into the City is unknown.

Generally, the City encourages development to occur within the corporate boundary, rather than the periphery, to ensure that new development contribute towards City services and resources that they will impact regardless of the jurisdictional boundary.

Growth Assumptions

The City has historically been the growth center of Frederick County and is projected to continue to attract much of the County's growth and development for the next 10-20 years. The City is anticipated to be the growth center for Frederick County for the following reasons:

- Federal, State, and County infrastructure is concentrated in the City.
- The state of Maryland's Smart Growth policies focuses growth towards areas with infrastructure in place.
- Frederick County's Livable Frederick Master Plan includes the City of Frederick within the Central District which is a Primary Growth Sector.
- The City of Frederick is a State Priority Funding Area.

Topography and Future Development

The City's existing water supply and distribution system is divided into two major pressure zones, with the lower Pressure Zone 462 to the east and higher pressure Zone 595 to the west. The system includes elevated storage tanks to supply water at adequate pressure in these zones.

As the City develops to the north and west, it is important to realize that any development at an elevation higher than 595 will require additional infrastructure to supply the necessary water and pressure to service those demands. As we project development, these areas may require infrastructure such as elevated storage tanks or other methods that may be costly to the developer or City. The map below shows areas that are outside of the City boundary at an elevation higher than 595 that cannot be serviced by existing infrastructure.

Development Capacity

In simple terms, the development capacity is the relationship between the projected population growth and resulting housing demand. The purpose of this exercise is to determine if the City has adequate land, zoned appropriately to meet the housing demand as the population grows or if there is a need to extend corporate limits and services to prepare for the predicted growth. Since 2004, the City has considered future growth in the following Tiers:

- Tier I – Areas for Infill and Redevelopment within existing City limits
- Tier II – Immediate areas of growth limited to prescribed water capacity
- Tier III – Areas of future growth without allocated water capacity assumptions

In calculating the land area required by the future growth of the City of Frederick, this Chapter of the comprehensive plan is based on the following assumptions:

TIER I DEVELOPMENT WITHIN THE EXISTING CITY LIMITS

Tier I development consists of the infill and redevelopment of vacant and underutilized parcels within the existing City boundary. For the purpose of projecting growth, only the vacant parcels are considered. The vacant land available for development is approximately 1,550 acres, of which only about 817 acres are zoned residential or mixed use.

As of the fourth quarter of 2019, there were approximately 7,000 units in the development pipeline. Using conservative trends from 2000-2019, the average number of dwelling units constructed per year is approximately 450. Given the historical pace of residential development, the residential pipeline will be exhausted in 2035.

The number and size of the vacant parcels are itemized in Table 4-6. This information demonstrates the development potential of the vacant acreage. As depicted, there are few lots over 25 acres. Medium-sized lots (three to 25 acres)

allow for creative development opportunities that have the most potential to add to the unique character of the City. Small lots can be developed by small home builders or consolidated with neighboring parcels to improve single lot development opportunities.

Infill Capacity Analysis

To estimate the development capacity of the vacant parcels, those of 3 or more acres are assumed to support noteworthy infill development. The applicable zoning classification was matched to the parcel to calculate the expected residential development capacity for each parcel. Selected parcels are shown on Figure 4-5. Results from this parcel by parcel analysis are shown in Table 4-7.

Parcels zoned for commercial or industrial development were not included in this analysis. However, these parcels are shown in Table 4-7, since their future development will place demand on the water, sewer, and road infrastructure. 246 parcels totaling 735 acres zoned Commercial or Industrial were subtracted from the total to isolate those parcels expected to yield residential or mixed-use infill development at build-out within the City's current corporate limits.

Results of the projection indicate that development of these noteworthy parcels could result in more than 4,000 residential units. Utilizing the 2018 household size of 2.46, the development potential of these units has the potential to support almost 10,000 new residents at build-out. When added to the existing population, a total of around 82,000 residents could be supported within the existing City limits.

In addition to vacant parcels' potential for development, there is always a redevelopment possibility for underutilized parcels. Normally, as an existing structure ages over time, maintenance becomes more expensive and the improvement value declines. Meanwhile, as population and wealth increase, the demand for land tends to rise and so does the value. Although not calculated in this analysis, land value to improvement value ratio is depicted in Figure 4-6 to determine the probability of the potential redevelopment: as the ratio increases, the likelihood that reinvestment will occur on the land increases.

It is important to note that the expected residential units yielded in this forecast will be inflated because many development constraints are not assumed.

(Insert Table MGE-5)

TIER II DEVELOPMENT BEYOND PRESENT CITY LIMITS

The City's growth will not be limited to areas currently located within the existing corporate limits. Several parcels are located within the Tier II boundary, which includes the PRWSA limits. These parcels are contiguous or proximate of the City's boundary and have the right to petition for annexation at any time.

Areas that represent potential growth through annexation and are located within the Tier II growth area are shown on Figure 4-8 and listed in Table 4-8. The estimated development potential through potential annexation and growth for these parcels is summarized in Exhibit 4 of the PRWSA. Please note that the projection of the PRWSA is estimated and the property will be carefully reviewed at the time of annexation.

Parcels zoned for commercial or industrial development were not included in this analysis. However, they are shown in the table since their future development will place demand on the water, sewer, and road infrastructure. 12 parcels totaling 790 acres zoned for Residential and/or Mixed-use are expected to yield residential units at build-out within the PRWSA limits.

Results of the projection indicate that development of the Tier II parcels could result in more than 1,600 residential units. Utilizing the average household size of 2.46, the development potential of these units has the potential to support almost 4,000 new residents at build-out. When added to the existing population and projected infill population, a total of 86,000 residents could be supported within the Tier II boundary.

TIER III GROWTH

Growth in this tier is to be considered only after the first two tiers are substantially developed. Unforeseen growth opportunities necessitate additional housing units, and only if water and sewer resources are available. As described in the Land Use Chapter, the 2020 Comprehensive Plan eliminates the future Tier III growth area from the Land Use Map. It prioritizes infill and redevelopment opportunities within the existing municipal boundary and creates flexibility for future annexations. The flexibility is shown by a hatched area surrounding the Tier II/PRWSA boundary.

When adding the potential development of the parcels located within Tier I and II with the current pipeline, the planned residential dwelling units can supply a population of 103,000. ($12,600 \times 2.46 + 72,000$)

Please see the Land Use Chapter and Future Land Use Map for further details on the three growth tiers.

Sustaining Growth Projections

The growth projections based on the Tier I & II development areas yield a similar conclusion as the MWCOG projections.

(Insert Table WMCOG projection vs Existing Tier I and II entitled Projection)

Additionally, according to MWCOG's *Growth Trends to 2045*, the City is estimated to have 93,100 population in 36,700 households in 2045. Per the analysis, the City can provide the units necessary to assist our region with housing units just through the existing pipeline and potential entitlements within the Tier I and II growth areas, not including increased density or other incentives that may encourage infill or redevelopment opportunities.

As a basis of this Plan, the projected levels of growth are considered to drive housing demand. It is important that City policy remains flexible to housing market with regards to unit types, densities and unforeseen employment and economic development initiatives that may increase the need to provide more units than projected. Based on the assumptions of this plan at the time of adoption, the City has the existing housing stock and planned units to supply the population growth projected until 2045.

Burdens on sensitive lands in and adjacent to the City of Frederick

The City of Frederick has a considerable diversity of habitat within a relatively small area. Within a short distance, in nearly every direction from the City's center, there are forested lands, streams and a scenic river, open farmland with fence rows, and wooded parcels. The City of Frederick maintains a 7,500-acre Municipal Forest in the mountains to the northwest of the City, primarily to protect the City's mountain water sources. Beyond this forest, Frederick also serves as a gateway for many local and regional environmental resources in the Catoctin Mountain region.

One of the most important natural resources of the City of Frederick is the Monocacy River. The Monocacy River is one of the largest tributaries of the Potomac and its watershed drains about 970 square miles in Carroll, Montgomery, and Frederick counties in Maryland and parts of Pennsylvania. The Monocacy is also the principal water resource in the Frederick region. Most wetlands in the Frederick region are also located along the Monocacy and its tributaries.

One of the premises for the tiered level of growth is to continue the balance development with environmental stewardship. This includes the preservation of forest land, the management of air quality, and the protection of water quality.

Sensitive areas include streams and their buffers; 100-year floodplains, habitats of threatened and endangered species; and steep slopes as well as other areas that the city determines are in need of protection. As the City continues to with growth, the protection of its sensitive areas will be ever more critical. Given Monocacy River watershed's importance to Frederick and the diversity of sensitive areas it contains, this habitat continues to receive special consideration.

The municipal annexation described in this and the Land Use Chapter will also have a major impact on how the City interacts with its natural surroundings. Development plans for annexation areas should take into consideration the effects that new development will have on the surrounding natural resources.

The City must decide on the appropriate balance between development and natural resource preservation and will continue to maintain policies that help its people and businesses achieve that balance. The Environmental Chapter contains policies that provide more detailed information on shielding sensitive areas.

Agriculture Easements

The City must recognize that the open agricultural character of adjoining areas defines the City edges and offers contrast between the developed City and rural County. From that perspective, preservation of agricultural land and agriculture economy in the region is viewed as a means of framing the City's identity within the larger rural County. From a land use perspective, the City must develop in a way that transitions from a dense urban core to the rural agriculture land located in the County.

When considering development entitlements, the State and County offer agriculture easements to preserve and conserve the necessary agriculture land for our community. It also restricts development and forces land use decisions. These easements are an important consideration and a factor in shaping the potential growth pattern of the City. Where they may limit development and potential annexation, they may provide many other resources that allow concentrated development within the City boundary.

As shown in Figure 4-11, there are several parcels encumbered by agriculture easements that are in proximity to existing City boundary.

Growth's Impacts on Public Services and Community Facilities

Development Impacts

The anticipated growth will demand additional resources for public services and facilities provided by the City, County and others. Impacts include increased demand for water, sewer, roads, schools as well as other public facilities such as police, fire and rescue, parks and libraries. While the City is diligent to ensure that adequate capacity is available for the services that it controls, the City does not govern the capacity of schools, libraries, fire and rescue and select sewer services.

The following impact estimates are derived using multipliers that represent assumptions about the level of service that will be provided in the future. New dwelling units or new population are the "service units" representing demand. The multiplier table was derived using information from local leaders and national industry standards. Many factors are involved with the level of service provided for each community, the purpose is to provide a general analysis for long term projections.

Facility / Service	Multiplier	Service Unit
Frederick County Public Schools		
Elementary School*		
Students	0.19	Per Dwelling Unit
Teachers	X.X	Teacher to Student Ratio
Middle School*		
Students	0.10	Per Dwelling Unit
Teachers	X.X	Teacher to Student Ratio
High School*		
Students	0.13	Per Dwelling Unit
Teachers	X.X	Teacher to Student Ratio
Police (sworn officers)	1 sworn officer	XXXX Residents
Fire and Rescue		
Personnel	1	500 residents
Facilities	XX GFA	XXX residents
Water and Sewer – Residential		
Water	250 GPD	Per Dwelling Unit
Sewer	250 GPD	Per Dwelling Unit
Water and Sewer –		

Commercial		
Water	GPD	Gross Floor Area**
Sewer	GPD	Gross Floor Area**
Libraries	1,000sf	10,000 residents
Parks and Recreation	10 acres	1,000 residents

* For a detailed pupil yield rate for Grade Level and Dwelling type, see Table X.X

Public Schools

City residents are served by Frederick County Public Schools (FCPS) for Kindergarten through Grade 12 public education. Impacts to FCPS enrollment levels are directly affected by the anticipated growth and development described in this Plan. In order to ensure quality education for all students of Frederick County, FCPS reviews the City's development review plans for consistency with the FCPS Educational Facilities Master Plan (EFMP). A typical review consists of comments and consideration to the Adequate Public Facilities Ordinance including enrollment and capacity as well as other site design standards.

[Insert Table: Enrollment Capacity of Schools that Serve the City] MGE6

As depicted in Table 4-10, there are 26 schools that service City residents. Nearly half (12) are over the State Rated Building Capacity, with 3 determined to be 125% over the SRC. As of recently and most likely in the foreseeable future, the schools that are most effected by City development pressure are those service the north west quadrant of the City. These are demarked with an asterisk in Table 4-10.

When considering the impacts of potential development within the City to the school system, it should be noted that school enrollment and staffing are only assumed for City developments. These assumptions do not consider other developments outside of the City's jurisdiction and within the same school district, the possibility of redistricting or other influences that would impact the future development potential or entitlements to properties. When considering the potential for Tier I and Tier II buildout, beyond the current pipeline, there is potential for 5,600 additional housing units, not including future annexations. These housing units have the potential to add 1,064 elementary, 560 middle, and 728 middle school students dispersed throughout the school district.

[Insert Table: Projected Population, Dwelling Units, General E.S, M.S, H.S Enrollment]

Insert Table: Projected Population, Various Mixture of Dwelling Units, E.S, M.S, H.S Enrollment

A major theme of this plan is to guide future growth and development with flexibility for the next 10 to 20 years. As technology continues to advance at exponential rates it is probable that local school systems, including FCPS, will adjust to meet modern developments. This may include new ways of instruction that may change the way enrollment and capacity is calculated. The City will continue to provide quality housing to meet the needs of the projected population growth, while remaining flexible to the existing and future capacity of the local school system.

Public Safety

The City of Frederick provides its own public safety services. Divided into three bureaus- Administrative, Operations, and Support Services- the Frederick Police Department provides 24 hours a day, seven day a week law enforcement services for the 72,152 residents of Frederick's approximately 24 square miles. As shown in Figure 4-15, the City generally has a low and decreasing level of crime, contributing to the City's high quality of life.

The addition of approximately 10,200 and 13,700 residents in the City over the next 10 and 25 years, respectively, will place additional service demands on public safety resources. As shown in Table 4-9~~12~~, using International City/County Management Association (ICMA) data, the City will expect to employ approximately 179 sworn officers in 2030 and 186 in 2045. It should be noted that this figure is provided to show an estimate and there are many factors beyond the City's population that determine the number of sworn officers needed to effectively serve the City.

Currently, due to space constraints, the police headquarters is not located in a centralized location. It is well known that the current configuration of the Police Department is inadequate for current and future needs. A recommendation of this plan is to prioritize the acquisition and planning for a new police headquarters in the downtown area.

[Insert Table Future Population / Police Sworn Officer]

Fire and Emergency Services

Frederick County provides fire protection services for all County and City residents. Additionally, the County provides disaster protection, emergency

health care, rescue, and other related services for the City. Since Fire and Emergency Services are provided to an area larger than the City itself, service levels are impacted not only by growth and development in the City, but also by development throughout the County. Policies in this Plan do not entail significant expansion of the City fire protection service areas. However, the Plan does call for intensified monitoring of response times and equipment capabilities and ensuring that response times and service levels remain adequate or improve over time.

The Frederick County Division of Fire and Rescue Services (DFRS) views the City and its potential growth as the population center of the County and the area where most of the fire and EMS incidents occur. Stations 1, 2, 3, 4 and 31, as well as the DFRS Headquarters, are located within the City and its growth areas.

Current DFRS locations include four downtown stations, three of which are located within the County's area of highest demand. All are primarily career operated and are near one another. Stations 1 and 3 are fire stations with engines, ambulances and other equipment; Station 4 houses only a truck company, while Station 2 and the DFRS Headquarters house Advanced Life Support (ALS) units. The Frederick County Fire Rescue Service Plan indicates that this arrangement has excessive redundancy and is not efficient use of resources. The City of Frederick could be more efficiently served by a consolidated downtown station and stations strategically located around the outer portions of the city; this configuration could help to maximize 4-minute travel time coverage as the City grows both in population and area.

[Insert Map: All existing Fire Stations in proximity of the City]

According to the Rescue Service Plan, there are three future fire-rescue station locations planned to improve City service. It is important to note that these recommendations are from the DFRS Rescue Service Plan and are not a recommendation from the City.

North Frederick – Site Acquired

As development has continued in the Route 15 corridor North of Opossumtown Pike in the City of Frederick, service demand in this growth area has continued to increase. This is an urban mixed-use development area that consists of single-family homes, multi-family apartments/condominiums mixed use retail commercial/professional office facilities, medical offices/institutions, educational institutions, light industrial facilities and assisted living facilities. The Junior Fire Company station located at 535 North Market Street, in downtown Frederick is currently the primary service provider to this growth area.

Given the current service demand in this growth corridor, the Division of Fire and Rescue Services views this area to be our number one priority to locate a new fire-rescue station. This station would be developed in partnership with the Junior Fire Company. The intent is for the county to build the station and Junior Fire Company would provide the fleet vehicles for the station and the facility would be staffed with a combination of career and volunteer personnel.

Downtown Frederick – (No Site Identified)

Currently, the core downtown area of the City is serviced by three (3) separate Fire-Rescue stations which are all located within 0.6 miles of each other. The United Steam Fire Engine Company located at 79 South Market Street, the Citizens Truck Company located at 15 South Court Street and the Junior Fire Company located at 535 North Market Street. This situation exists today primarily because the stations were constructed during the era of non-motorized fire apparatus.

The current United Steam Fire Engine Company station no longer adequately serves the needs of the career and volunteer personnel. The apparatus bays barely accommodate the fire and rescue vehicles that operate from this station. The station is landlocked with no option to increase space through expansion of the station and the historic significance of the building makes renovation problematic.

While the current Citizens Truck Company station is in good structural condition, it is also cramped for space for the response vehicles and personnel that operate from this station. This facility is redundant, and it does not make good economic sense to fund a facility that houses a single fire suppression response function.

The optimal solution is to locate a downtown fire station site and construct a new station that would combine the functions of the United Steam Fire Engine Company and the Citizens Truck Company into a single downtown fire-rescue station.

Due to limited land area available within the core downtown area it is highly doubtful that a 4-acre site could be obtained, therefore the site selected will more than likely dictate that a multi-story fire-rescue station be constructed to house the downtown companies.

Walter Martz Road / Christopher Crossing – (Site Acquired)

Given the current growth in the Yellow Springs/Christopher Crossing/Whitter areas in west Frederick City and the continuing requests for land annexation into the City, a parcel of land has been acquired from the City of Frederick as a

placeholder for a future fire-rescue station site to serve the greater Yellow Springs area.

This area continues to see land use applications for low and medium density residential development in single family attached and detached arrangement. Small general commercial development of the type typically provided for residential support will also occur in this growth area.

With growth in the City of Frederick and environs continuing to progress to the North and West, an additional fire – rescue station will be needed to meet the service demand that this growth will generate.

[Insert Map: Locations of Future Fire Stations]

Water and Sewer Facilities

A detailed description of the City's existing and planned public water and sanitary sewer services and facilities is provided in the Water Resources Chapter. This section only summarizes the impact of future growth on those facilities. Currently the City has 5.39 million GPD of water available to units that have been accounted for in the development pipeline or anticipated in the PRWSA. Future available capacity for units that have not received entitlements or accounted for in the PRWSA equals 1.47 million GPD. If the available water was allocated only to future residential development, there is capacity for 6,774 residential units ($1.47\text{M} / 217$) (217 is the average of 250 GPD/SF, 225 GPD/TH, 175 GPD MF) or the additional population of 16,935 residents or approximately a total City population of 120,000.

Note that this calculation does not include future commercial development that may be proposed in Tier I or Tier II. If the total buildout of 7.9 million square feet of non-residential development forecasted in Table 4-6 would be realized in vacant land only, approximately 5-10 million GPD of water would be demanded. This does not include areas located within Tier II or future annexations.

It is difficult to assess the exact water demands for future development, especially non-residential. These numbers were estimated only to provide a general assumption for future growth capacity for only residential and non-residential development and not a mixture of uses. Further engineering studies will be conducted to analyze the exact implications of the infill development, development not accounted for in Tier II or the PRWSA, and the impacts of future annexations to the available capacity.

Transportation Infrastructure

While there is an impact on roads and other transportation infrastructure from new development, there is not a simple service unit to be provided and so there is not a simple multiplier. Trips generated by a given development are spaced throughout the day. Some trips may be at rush hour; others may occur mostly at off-peak hours; still others may be irregular. Further, each development can undertake efforts to shift trips from modes whose infrastructure is heavily used (such as driving) to modes whose infrastructure is not (such as walking) and so alter the particular impacts on the City's transportation infrastructure. As a result, the City's approach to assessing transportation impacts is done on a case-by-case basis to ensure the city's transportation infrastructure can accommodate the new development.

Library System

The Frederick County Public Library System is a county-wide system consisting of 9 branches serving more than 250,000 County residents. One library branch serves the City of Frederick: the 66,000 square foot C. Burr Artz Library located on 110 East Patrick Street and situated on the Carol Creek. The C. Burr Artz Library also serves as the County's central library system. Per the American Library Association's suggested standards of 1,000 square feet of library space per 10,000 residents the City's library is more than adequate in size to accommodate our expected population growth through 2030.

Nevertheless, with the anticipated growth, the library service requirements will increase. Future library needs will consider growth in the north and possibly west areas of the City. The Frederick County Public Library's twenty-year plan also recommends that by 2030 an additional library will be located within the north area of the City and recommends that the C. Burr Artz Library is renovated as well.

[Insert Map: All Library's in proximity of the City]

Recreation

A detailed description of the City's existing and planned public parks and recreation services and facilities is provided in the Parks and Recreation Chapter. The City has 75 public parks, totaling 807 acres, with an average size of 10.7 acres equating to approximately 11 acres of parkland per 1,000 residents, thereby exceeding the National Recreation and Parks Association guidelines of 10 acres per 1,000 residents. The projected population in the year 2045 is 93,100 requiring at least 931 acres of parkland to comfortably serve the residents. As the City prepares for future growth, approximately 124 additional acres of parkland will be needed in the next 25 years.

Municipal Growth Policies and Implementation

MG Policy 1

The City of Frederick will manage development of vacant and redevelopment of underutilized lands by promoting greater densities and a mixture of residential and non-residential uses.

IMPLEMENTATION

1. Future growth will occur per the tier policy as outlined in the Land Use Chapter and the Land Use map.
2. Review the APFO, all codes and regulations, and development fees to encourage redevelopment and infill development.
3. Encourage mixed use redevelopment and infill development at highest and best use.

MG Policy 2

Manage annexations in a manner to provide the necessary dwelling units and nonresidential structures to supply the demand of the future population and employment projection.

IMPLEMENTATION

1. Annexations will be considered only when they provide units and necessary square footage to supply population and employment growth.
2. Annexations and the assignment of a zoning designation must be consistent with the recommendations of each chapter of this Comprehensive Plan.
3. Continue to require annexation petitions to provide an outline for extensions of services that includes an analysis of revenues to the City versus City expenditures.
4. Continue to require annexations and applicable developments to comply with the City's Adequate Public Facilities Ordinance and Water and Sewer Allocation Ordinances as well as contribute to future infrastructure improvements by paying applicable impact fees.

MG Policy 3

The City will continue to work to ensure that adequate police will be available throughout existing and future growth areas.

IMPLEMENTATION

1. Acquire land and begin the process of development and construction of a central police headquarters in Downtown Frederick.
2. Provide Police Activity League services in underserved communities.
3. Provide the necessary number of sworn officers and police department employees to provide a safe level of services for City residents and businesses.

MG Policy 4

The City will continue to protect and conserve the existing water supply systems for existing residents and future development.

IMPLEMENTATION

1. Continue to collaborate with Frederick County officials to provide for the future water capacity needs through the Potomac River Water Supply Agreement.
2. Control the amount of water unaccounted for in the supply system by locating and repairing leaks found in the Water Loss Reduction Program.
3. Consider assessing the amount of water allocated and the amount of water consumed to ensure previous assumptions and estimations are accurate and reflect recent technological advancements.
4. Undertake a public awareness campaign to educate the residents and businesses on practical conservation methods.

MG Policy 5

The City will provide for wastewater capacity that serves existing neighborhoods and future growth.

IMPLEMENTATION

1. Continue to collaborate with Frederick County officials to provide for future sewer needs through negotiated purchase of capacity.
2. Control the amount of excessive inflow and infiltration into the sewer piping system by locating and repairing sources of inflow and infiltration.

3. Install and maintain proper metering devices within the sewer piping system to determine peak flow rates and areas of concern.
4. Coordinate with the United States Army Corp of Engineers (USACE) to complete the flood resiliency study and implement the findings and recommendations to manage stormwater.

MG Policy 6

The City will continue to collaborate and coordinate with the State of Maryland and Frederick County about future development projects to ensure adequate public facilities and services are provided for the growing population and projected growth.

IMPLEMENTATION

1. Continue to work with Frederick County Public Schools to identify potential school sites that would serve City residents.
 - a. Collaborate to require the dedication of school sites, where needed, when reviewing annexations and development proposals
2. Coordinate with Frederick County Public Libraries to ensure adequate library facilities are provided to the City residents.
3. Coordinate with the County to ensure adequate Fire and Emergency service in the City.
 - a. Encourage at least one DFRS station in the downtown core to provide adequate protection to higher risk environment, consisting of older structures at higher densities that lack modern fire suppression infrastructure.
 - b. Support the DFRS in the construction of new stations as delineated in figure 4-16.
4. Continue to work with the State of Maryland and Frederick County to ensure adequate road infrastructure is maintained as well as alternative transportation options are provided to City residents.

MG Policy 7

Establish and maintain a monitoring system to measure progress toward achieving the policies of the Municipal Growth Chapter.

IMPLEMENTATION

1. Design and implement a land use monitoring system based on measurable results directly related to objectives 1 through 6.

MG Policy 8

Actively incorporate the considerations of underrepresented communities and low-income residents in decision-making regarding public services and amenities as the City's population continues to grow.

IMPLEMENTATION

1. Coordinate with community groups active among minority communities and with low-income residents for public outreach to elevate and include those voices in public discourse and decision-making.
2. Actively recruit underrepresented populations to advisory boards, committees, and other volunteer positions.
3. Commission a comprehensive anti-racism plan with recommendations for policies regarding the necessary public services to serve the growing population.